

PATENT SPECIFICATION

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(54) IMPROVEMENTS IN AND RELATING TO COVERS

(71) We, BROOKLYNS WEST-BRICK LIMITED, a British Company of 1 Market Place, Poole, Dorset BH15 1NH, do hereby declare the invention for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to covers and has particular reference to covers for covering stop-cock recesses.

For many years stop-cocks have been located in concrete units which have a cast in metal lid and frame. The lid hinges on a metal pin passing through a wall of the frame and through a projection on the underside of the lid.

A disadvantage of existing covers is that when closed, the lid is supported only on three sides of the frame and is either unsupported below the hinge pin or supported only adjacent opposite ends thereof. When a load is applied to the lid, excessive stresses can be transferred to the hinge.

According to the present invention there is provided a cover for a stop-cock recess comprising a frame, a lid adapted to be received in the frame, hinge means between the lid and the frame to permit the lid to move between an open and a closed position and support means on the frame, wherein said support means extends under the hinge means and is adapted to support the lid in the closed position along a major proportion of each peripheral edge thereof such that a load applied to the lid in the closed position is transmitted to the frame substantially only via the support means.

The frame and the lid are preferably made of plastics material.

The hinge means preferably comprises a spigot extending from each of a pair of opposite sides of the lid and locating means in the frame for receiving the spigots so that the spigots can move horizontally in the locating means upon movement of the lid relative to the frame and thereby comprises a floating pivot axis.

Following is a description by way of example only, and with reference to the accompanying drawings of one method of carrying the invention into effect:—

In the drawings:—

Figure 1 is a plan view of a frame of a cover according to the invention;

Figure 2 is a cross-section on the line I—I of Figure 1;

Figure 3 is a plan view of a lid of the cover;

Figure 4 is an elevation of the lid shown in the direction of the arrow A in Figure 3;

Figure 5 is a diagrammatic side view of the cover when it is closed;

Figure 6 is a diagrammatic side view of the cover when it is partially open;

Figure 7 is a diagrammatic side view of the cover when it is open; and

Figures 8, 9 and 10 are diagrammatic front views of the cover corresponding to Figures 5, 6 and 7 respectively.

Referring to Figures 1 to 4 of the drawings, the cover according to the invention comprises a frame 1 moulded in plastics material, and a lid 2 also moulded in plastics material.

The frame 1 is rectangular and comprises a front wall 3, rear wall 4, and side walls 5 and 6. Extending outwardly of each of the walls is a flange 7 which forms a base of the frame 1 and extending inwardly of the walls is a ledge 8 which has a front portion 8a on the front wall 3, a rear portion 8b on the rear wall 4, and side portions 8c and 8d on the side walls 5 and 6 respectively. The ledge 8 is reinforced on the underside thereof by spaced vertical ribs 9. The rear portion 8b of the ledge 8 has a notch 10. The side portions 8c and 8d of the ledge 8 have shoulder portions 8e and 8f respectively adjacent opposite ends of the rear portion 8b of the ledge. Each side wall 5, 6 has a flange 11, 12 in spaced parallel relationship above the shoulder portion 8e and 8f of the ledge 8. Each flange 11, 12 has a front wall 13 which slopes in a direction from the adjacent side wall 5, 6 towards the rear wall 4. Each flange 11, 12 also has a lower surface, a forward

portion 15 of which slopes downwardly towards the rear wall 4 and a rearward portion 16 of which is recessed defining a shoulder 14. The recessed rearward portion 16 of each flange 11, 12 and the underlying shoulder portion 8e and 8f together define a slot X.

The lid 2 comprises a plate which is rectangular in plan and also in transverse and longitudinal cross-section. It has a front wall 17, a rear wall 18 and side walls 19 and 20. An upper surface of the lid has a plurality of grooves 40 arranged to form a diamond shaped pattern. The pattern is relieved in areas 21 and 22 so that the lid can receive name plates in these areas.

The front wall 17 of the lid has a notch 23. Each side wall 19, 20 has a cut-away portion 24, 25 at the corner formed by the side wall 19, 20 and the rear wall 18. Each cut-away portion 24, 25 has a front wall 26, 27 which slopes towards the rear wall 18 of the lid. Each cut-away portion has a spigot 28, 29 extending therefrom laterally of the lid 2.

Each spigot 28, 29 is located in the respective cut-away portion 24, 25 at the corner of the cut-away portion by the rear wall 18 and a lower surface of the lid 2. Each spigot 28, 29 has an upper surface 30, a lower surface 31, a front wall 32 and a rear wall 33. The upper surface 30 has a recess 34 adjacent the front wall 32. The upper surface 30 slopes downwardly from the recess 34 towards the rear wall 33. The distance between the front wall 32 and the rear wall 33 and the distance between the upper surface 30 and the lower surface 31 of each spigot 28, 29 is greater than the height of the shoulder 14 of each flange 11, 12 from the adjacent shoulder portion 8e and 8f of the ledge 8.

Assembly of the lid 2 on the frame 1 is carried out by placing the lid on the frame so that the upper surface 30 of each spigot 28, 29 is adjacent the sloping surface 15 of each flange 11, 12. The lid is then pushed towards the rear wall 4 of the frame and is manipulated so that the spigots 28, 29 are negotiated and snapped under the shoulder 14 of each flange 11, 12 and are received in the slots X.

When the rear wall 18 of the lid 2 is adjacent the rear wall 4 of the frame 1, the lid can be lowered into the frame 1 and the lower edge portions of the walls 17, 18, 19 and 20 of the lid will be supported by the portions 8a, 8b, 8c and 8d respectively of the ledge 8 of the frame. The front walls 26, 27 of the cut-away portions 24 and 25 of the side walls 19 and 20 of the lid 2 align with the front walls 13 of the flanges 11, 12 of the frame, when the lid is supported on the ledge 8.

Since the rear wall 18 of the lid 2 is supported by the portion 8b of the ledge 8, when

the cover is closed by the lid, the spigots 28, 29 are not subjected to excessive stresses when a load is applied to the lid because the load is spread along the rear portion 8b of the ledge 8.

Referring to Figures 5 to 10, the cover is shown closed in Figures 5 and 8 with the rear portion 8b of the ledge 8 supporting the rear wall 18 of the lid.

The cover is opened by inserting a tool into the notch 23 of the lid 2 and raising the lid so that the front wall 17 of the lid can be gripped. The lid 2 is then lifted at the front wall 17 and, in consequence, the rear wall 18 of the lid engages the rear wall 4 of the frame 1 and the lid pivots about a line of contact with the rear wall 4 of the frame. The spigots 11, 12 are turned in their respective slots X and move away from the rear wall 4 of the frame 1 and off the rear portion 8b of the ledge 8, as shown in Figures 6 and 9. During this movement the side walls 19 and 20 of the lid are supported on the shoulder portions 8e and 8f of the ledge 8 so that the spigots 28 and 29 are not subjected to excessive stresses.

When the lid 2 is in a fully raised position, as shown in Figures 7 and 10, the rear wall 18 of the lid is supported by the rear portion 8b and the shoulder portions 8e and 8f of the ledge 8. The lid 2 is thus self-supporting in an open condition and is retained in the slots X because the distance between the front wall 32 and the rear wall 33 of each of the spigots 28 and 29 is greater than the height of the shoulder 14 of each flange 11, 12 from the ledge 8.

Closing of the cover is achieved by lowering the lid 2 causing the edge formed by the lower surface and the rear wall 18 of the lid 2 to pivot on the shoulder portions 8e and 8f. Since raising of the lid caused it to move forwardly on the ledge 8 it is necessary to slide the lid 2 rearwardly towards the rear wall 4 of the frame 1 as the lid is lowered so that the lid can be received within the frame and can once more seat on the ledge 8.

It will be appreciated that the lid 2 can be detached, in the event of damage for example, and replaced. Removal of the lid is achieved by lifting the front wall 17 of the lid from the frame 1 and drawing the lid away from the rear wall 4 of the frame until the recesses 34 of the spigots engage the shoulders 14 of the flange 11, 12. Further upward movement of the lid 2 accompanied by pushing of the rear wall 18 of the lid away from the rear wall 4 of the frame 1 enables the spigots 28, 29 to be formed under the shoulder 14 and worked out of the slots X.

In some cases, however, the damage may be such that it is necessary to remove the lid in a different manner. For example, if the lid is damaged by a line fracture which transverses the lid from the side 19 to the side

20 of lid 2, part of the lid will still remain located in the frame by the spigots 28, 29. Removal of this remaining part is achieved by cutting through the lid 2 at 90° to the rear face 18 at a position in line with the notch 10 of the frame 1, the notch having been specifically provided so that cutting of the lid 8 can be carried out without damaging the ledge 8 and without being impaired by the ledge 8.

If the lid 2 is damaged but is not fractured the above operation is carried out commencing at the front wall 17 of the lid.

If the lid 2 is damaged by a line of fracture which transverses the lid from the front wall 17 to the rear wall 18 the spigots can be freed by moving the remaining portions in a direction 90° to side walls 19 and 20.

Since the frame 1 and the lid 2 are made of plastics material and the cover may be buried underground the lid or frame may be provided with a metal strip to facilitate subsequent location by a metal detector.

It may be found necessary to provide strengthening ribs on the under side of the lid. Alternatively, the lid may be manufactured in structural foam plastics material. Furthermore, in order to reduce the thickness of the walls 3 to 6 of the frame, portions of the walls can be reduced in thickness locally.

It will be appreciated that rectangular shape of the frame and lid may be square. Alternatively, the frame and the lid may be of a shape other than rectangular and may, for example, be partially circular, so long as the rear wall portion is straight.

WHAT WE CLAIM IS:—

1. A cover for a stop-cock recess comprising a frame, a lid adapted to be received in the frame, hinge means between the lid and the frame to permit the lid to move between an open and a closed position and support means on the frame, wherein said support means extends under the hinge means and is adapted to support the lid in the closed position along a major portion of each peripheral edge

thereof such that a load applied to the lid in the closed position is transmitted to the frame substantially only via the support means.

2. A cover according to claim 1 wherein the hinge means comprises a spigot extending from each of a pair of opposite sides of the lid and locating means in the frame for receiving the spigots so that the spigots can move horizontally in the locating means upon movement of the lid relative to the frame and thereby comprise a floating pivot axis.

3. A cover according to claim 2 wherein the locating means extends above at least a portion of the support means and constitutes a recess for receiving the spigots.

4. A cover according to claim 3 wherein the recess comprises means deformable to allow the respective spigot to engage in the recess by application of a force applied via said spigot of a magnitude sufficient to cause the means to deform.

5. A cover according to any one of claims 2 to 4 wherein the spigots are substantially rectangular in cross section.

6. A cover according to claim 5 wherein each spigot has a recess at a corner of the rectangular cross section adapted to engage the deformable means during removal of the lid from the frame, to facilitate the same.

7. A cover according to claim 5 or claim 6 wherein the lid is provided with recesses in portions adjacent the side and rear edges thereof and the spigots are provided in the recesses.

8. A cover according to claim 7 wherein an upper surface of the lid is provided with a plurality of grooves.

9. A cover for a stop cock recess substantially as herein before described with reference to the accompanying drawings.

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COMPLETE SPECIFICATION

4 SHEETS

This drawing is a reproduction of
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Sheet 1

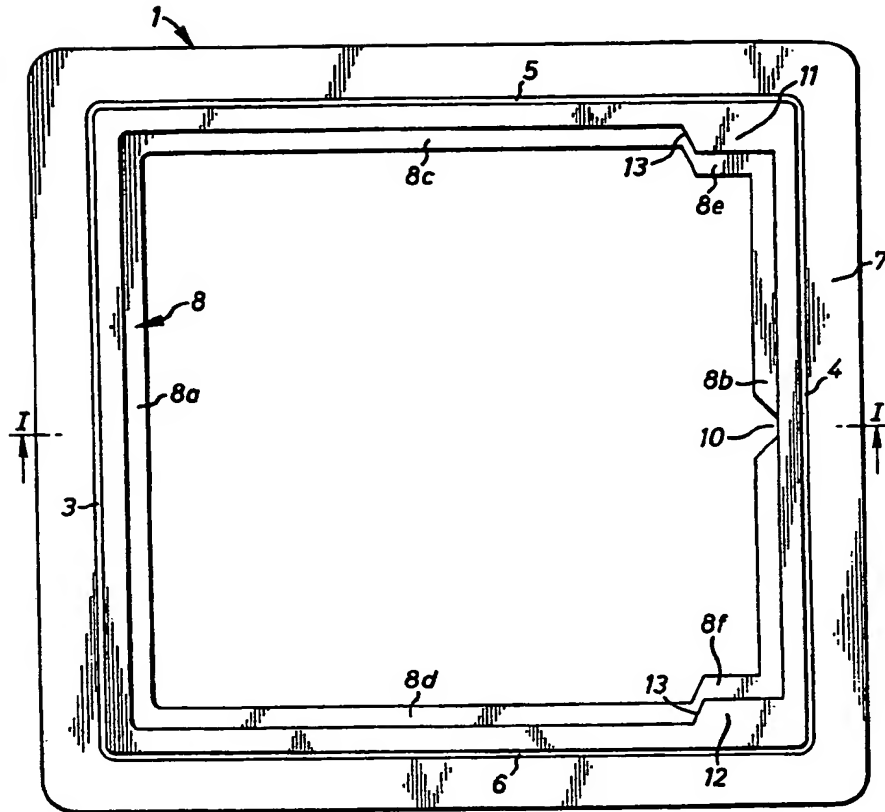


FIG. 1

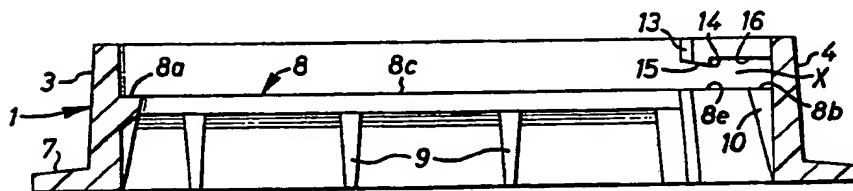


FIG. 2

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Sheet 2

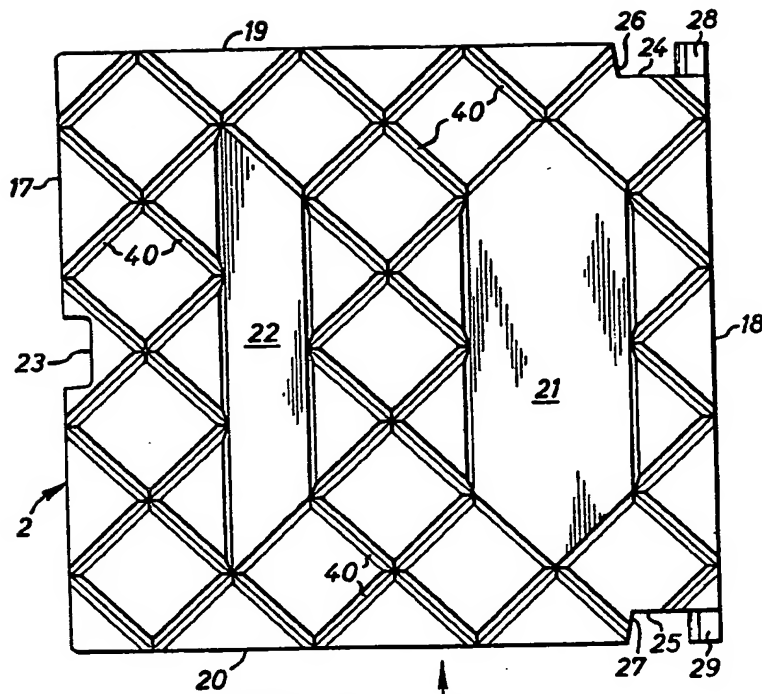


FIG. 3

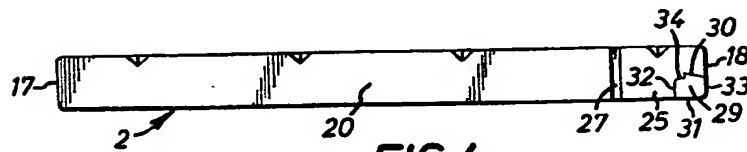


FIG. 4

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Sheet 3

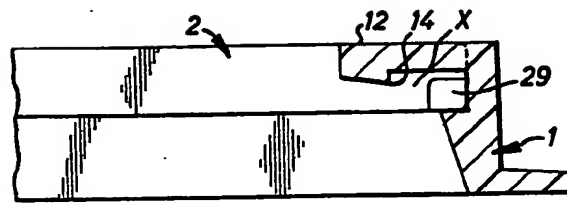


FIG. 5

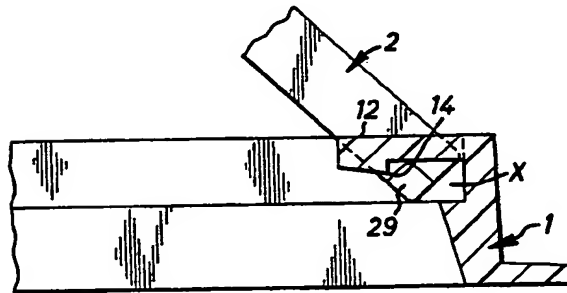


FIG. 6

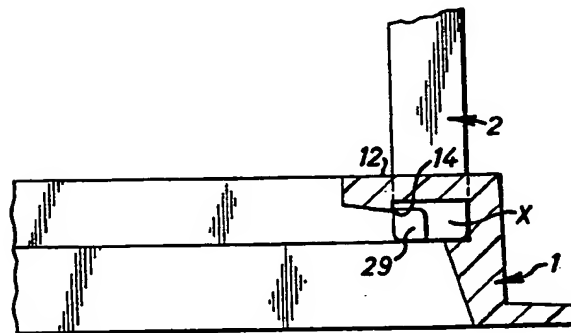


FIG. 7

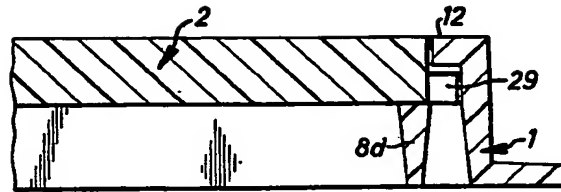


FIG. 8

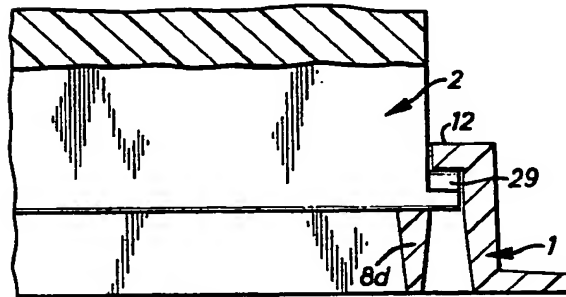


FIG. 9

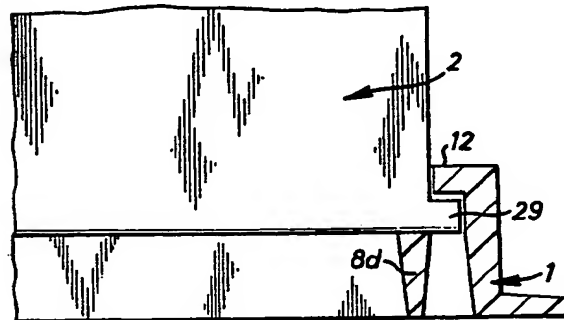


FIG. 10

Job Messages

XEROX

MJAKE

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